

Claims: We claim:

1. A direct material deposition method comprising the steps of:
  - a. providing a powdered material that can be melted by a laser beam;
  - b. providing a laser nozzle assembly having multiple laser beams coupled with said powdered material from a set of powder nozzles directed to approximately the same location;
  - c. positioning a deposition substrate adjacent to the laser deposition head outlets;
  - d. melting said powdered material with said laser beam; and
  - e. providing relative motion between the laser deposition apparatus and said deposition substrate.
- 5 2. The method of Claim 1, wherein said powdered material is melted with said laser beams, whereby the melted powdered material is fused to a substrate to create a thin layer of material.
- 10 3. The method of Claim 1, wherein said powdered material is vaporized with said laser beams, whereby the vaporized powdered material is deposited onto the substrate to create a thin layer of material.
- 15 4. The method of Claim 1, wherein said relative motion derives from a CAD model.
- 20 5. The method of Claim 4, wherein a single laser beam can be used to outline features defining surfaces of an object under construction.
6. The method of Claim 4, wherein said multiple laser beams are used to fill the featureless regions defining the surfaces of said object.
- 25 7. The method of Claim 1, wherein said laser beams are controlled individually, whereby one or more of the beams may be modulated on and off during any part of the deposition process to create one or more line deposits simultaneously.